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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,898	07/14/2003	Runc Robert, Isak, Erik Frants	VEOC.003.02US	7453

31272 7590 03/06/2006  
RAE-VENTER LAW GROUP, P.C.  
P.O. BOX 1898  
MONTEREY, CA 93942-1898

EXAMINER

CHEN, SHIN LIN

ART UNIT PAPER NUMBER

1632

DATE MAILED: 03/06/2006



Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/619,898

Applicant(s)

FRANTS ET AL.

Examiner

Shin-Lin Chen

Art Unit

1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-40 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

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1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-21, 29-33 and 38, drawn to an isolated nucleic acid encoding an alpha1 subunit of a P/Q-type gated calcium channel or a specific fragment or derivative or homolog of said calcium channel, a nucleic acid that is at least 70% identical to the sequence of SEQ ID Nos. 1-42, an expression vector comprising said nucleic acid, and a host cell containing said nucleic acid.

Group II, claim(s) 22-25, 27 and 28, drawn to a method of identifying a gene which encodes a P/Q-type gated calcium channel by using the nucleic acid of claim 1 or 20.

Group III, claim(s) 26-28, drawn to a method of distinguishing between alleles of a gene which encodes a P/Q-type gated calcium channel by using the nucleic acid or fragment in claim 20.

Group IV, claim(s) 30-33, 39 and 40, drawn to an animal or a non-human transgenic animal comprising the nucleic acid set forth above.

Group V, claim(s) 34, drawn to a method for screening for an agent for treating FHM, EA-2, SCA6, migraine or other neurological disorder by using animal.

Group VI, claim(s) 35, drawn to a protein or peptide encoded by the nucleic acid of claim 1.

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Group VII, claim(s) 36 and 37, drawn to a natural or synthetic antibody against a protein or peptide according to claim 35, and a method for diagnosing FHM, EA-2, SCA6, migraine or other neurological disorder associated with cation channel dysfunction by using said antibody.

Claims 27 and 28 link to inventions II-III. The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim(s), claims 4 and 16-18. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also M.E.P. § 804.01.

The inventions listed as Groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature for groups I-VII is an isolated nucleic acid encoding an  $\alpha 1$  subunit of a P/Q-type gated calcium channel or a specific fragment or derivative or homolog of said calcium channel, or a nucleic acid that is at least 70% identical to the sequence of SEQ ID Nos. 1-42. Ellis et al., 1995, teaches a nucleotide sequence, N\_Geneseq\_36 Accession No. Q84659, which is 95.1% identical to base 142 to 244 of

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SEQ ID No. 4, and said nucleotide sequence encodes a human neuronal calcium channel subunit 1A1. Since the nucleotide sequences of SEQ ID Nos. 1-42 are not disclosed in the foreign application Netherlands 96202707.4 filed 9-27-96, therefore, the priority date of said application is not granted. Ophoff, 1996, teaches a nucleotide sequence, GenEmbl Accession No. Z80116, which is 100% identical to the sequence of SEQ ID No. 3, and said nucleotide sequence encodes a P/Q type calcium channel. Thus, no special technical feature has been contributed over the prior art by the instant invention. Further, the methods described in groups II, III, V and VII are drawn to materially distinct methods which differ at least in objectives, method steps, reagents and/or dosages used, schedules used, response variables, and criteria for success. Nucleic acids, proteins, antibodies, and transgenic animals are drawn to compositions having different chemical structure, physical properties and biological function, and they are different products. Therefore, groups I-VII do not relate to a single general inventive concept under PCT Rule 13.1.

Upon election of a group, a further restriction is required as follows:

Since the SEQ ID Nos. 1-42 recited in the claims of the present application represent different DNA sequences having various mixture of exon and intron sequences. They lack common property or activity and the function and utility of the nucleotide sequence of each SEQ ID No would differ from each other, therefore, they represent different products. Thus, the SEQ ID Nos. 1-42 recited in the claims of the present application do not relate to a single general inventive concept. Applicant is required to elect a **single** SEQ ID No. for consideration by examiner.

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Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shin-Lin Chen whose telephone number is (571) 272-0726. The examiner can normally be reached on Monday to Friday from 9:30 am to 6 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for this group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Shin-Lin Chen, Ph.D.



SHIN-LIN CHEN  
PRIMARY EXAMINEE

<b>Notice of References Cited</b>	Application/Control No. 10/619,898	Applicant(s)/Patent Under Reexamination FRANTS ET AL.	
	Examiner Shin-Lin Chen	Art Unit 1632	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Ellis et al., 1995, N_Geneseq_36 Accession No. Q84659.
	V	Ophoff, 1996, GenEmbl Accession No. Z80116.
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



/ \*tag= a  
 WO9504822-A.  
 16-FEB-1995.  
 11-AUG-1994; 94WO-US09230.  
 11-AUG-1993; 93US-010536.  
 05-NOV-1993; 93US-0149097.  
 (SALK ) SALK INST BIOTECHNOLOGY IND ASSOC.  
 Ellis SB, Gillespie A, Harpold MM, McCue AF, Williams ME;  
 WPI: 1995-090900/12.  
 P-FSDB; R71008.  
 DNA encoding human calcium channel sub-unit(s) - used for  
 developing prods. for studying calcium channels, e.g. for  
 obtaining agonists and antagonists  
 claim 1. Page 190-201; 285pp; English.

DATE 1: PAGE 190-201: 285pp; English.

One of the reasons for this is that the alpha 1A-2 is given in 084660/R71008. Alpha 1A-2 differs from alpha 1A-1 encoding sequence at the 3' end in that it lacks a 5 nt. sequence. This deletion shifts the reading frame and introduces a translation termination codon resulting in an alpha 1A-2 coding sequence that encodes a shorter alpha 1A subunit than that encoded by alpha 1A-1. DNA encoding alpha 1A subunits can be isolated using all or a portion of the DNA having sequence 084661, 085659 or 084660 or DNA obtained from the phage lysate of an *E. coli* host containing DNA encoding an alpha 1A subunit that has been deposited in the ATCC under accession no. 75293. The DNA is such a phage includes the DNA fragment having the sequence in 084661 which selectively hybridises under conditions of high stringency to DNA encoding alpha 1A DNA but not to DNA encoding alpha 1B.

Sequence 7791 BP; 1675 A; 2436 C; 2258 G; 1422 T; 0 other;

Query Match	36.7%	Score 95;	DB 16;	Length 7/91;
Best Local Similarity	95.1%	Pred. No. 2.8e-20;		

[illegible]

	775	gcacccctggcgagcgtggaatcccaagtgcgtgagt	244
Oy	202	tgcggcgctcaaacctggtctggaatcccaagtgcgtgagt	244
Dd	835	tgcggcgctcaagctggctggaatcccaagttacaagt	877

RESULT 4

XX	Q84659;
AC	01-DEC-1995 (first entry)
XX	Human neuronal calcium channel subunit alpha 1A-1.
DT	Calcium channel subunit; antagonist; agonist; diagnosis;
XX	Lambert Eaton Syndrome; ss.
XX	
DE	
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	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731
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## ALIGNMENT'S

RESULT	1	441 bp	DNA	PRI	01-NOV-1996
HSCAC3					
LOCUS					
DEFINITION					
ACCESSION					
VERSION					
KEYWORDS					
SOURCE					
ORGANISM					
REFERENCE					
AUTHORS					
JOURNAL					
FEATURES					
source					
gene					
exon					
BASE COUNT					
ORIGIN					
Query Match					
Best Local Similarity					
Matches					
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102					
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361	Qy	agctgtatatatacagcagatgcttctctgtacaaataaaaaataatagctcattatgttg	420
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421	Db	CTGCTCCAGAGTGCTTTATG	441

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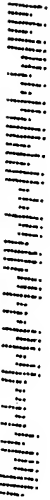
RESULT      2
A70682      441 bp      DNA
LOCUS       Sequence 3 from Patent WO9813490.
DEFINITION  A70682
ACCESSION   A70682
VERSION     A70682.1  GI:4774686
KEYWORDS    .
SOURCE      unidentified.
ORGANISM    unidentified
             unclassified.
REFERENCE   1 (bases 1 to 441)
AUTHORS    Ophoff,R.A., Terwindt,G.M., Ferrari,M.D. and Frants,R.R.
TITLE       A gene related to migraine in man
JOURNAL     Patent: WO 9813490-A 02-APR-1998:
            OPHOFF ROEL ANDRE (NL)
FEATURES    Location/Qualifiers
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             /organism="unidentified"
             /db_xref="taxon:3264"
BASE COUNT  89 a 110 c 104 g 138 t
ORIGIN

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[illegible]

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P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

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- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

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